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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/898,909 | 07/03/2001 | Detlef Weber | 12816-021001/S1166 SB/flü | 9573 |

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| EXAMINER |
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CAO, PHAT X

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| ART UNIT | PAPER NUMBER |
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2814

DATE MAILED: 07/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/898,909

Applicant(s)

WEBER, DETLEF

Examiner

Phat X. Cao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-27 is/are pending in the application.
- 4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

- (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
- (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 21-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Usami (US. 6,498,398).

Usami (Figs. 4, 6A-6C and related text, column 10, lines 45-67 through column 11, lines 1-11) discloses a method for fabricating a metallization arrangement for a semiconductor structure, the method comprising: providing a first metallization plane 2a on the semiconductor structure; providing a first intermediate dielectric 5a on the first metallization plane; providing a liner layer 17 made of silicon dioxide on the first intermediate dielectric; providing via holes 6 in

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the first intermediate dielectric 5a and the liner layer 17, the via holes being filled with a conductive material 7, thereby completing a first resulting structure; providing a second metallization plane on the first resulting structure; patterning a first interconnect 8 and a second interconnect 8 in the second metallization plane by masking; interrupting the top portion of the liner layer 17 between the first and second interconnects 8, thereby forming an interspace 13 therebetween; and providing a dielectric 9 in the interspace.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 21-23 and 26-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Jeng et al (US. 5,744,865).

Jeng (Fig. 1-7) discloses a method for fabricating a metallization arrangement for a semiconductor structure, the method comprising: providing a first metallization plane 28 on the semiconductor structure 12 having an electrical circuit 14 (Fig. 5); providing a first intermediate dielectric 30 on the metallization plane 28 (Fig. 6); providing a liner layer 16 made of a dielectric material on the first intermediate dielectric 30 (Fig. 7); providing via holes 18 in the first intermediate dielectric 30 and the liner layer 16 (Fig. 7), the via holes 18 being filled with a conductive material, thereby completing a first resulting structure; providing a second metallization plane on the first resulting structure; patterning a first interconnect and a second

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interconnect 22 in the second metallization plane by using a mask; interrupting the liner layer 16 between the first and second interconnects 22 by common etching step (column 4, lines 22-28), thereby forming an interspace between the first and second interconnects 22; and a dielectric 26 in the interspace.

Response to Arguments

5. Applicant argues that Usami's Fig. 4 does not suggest "interrupting said liner layer between said first interconnect and said second interconnect".

The Examiner respectfully disagrees because the top portion of the liner layer 17 is clearly interrupted by a groove 13 from etching for providing an interspace between the first and second interconnects 8. Therefore, Usami's Fig. 4 does suggest the invention as claimed.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (703) 308-4917. The Examiner can normally be reached on Monday through Thursday. If attempts to reach the Examiner by telephone are unsuccessfully, the Examiner's supervisor, Wael Fahmy, can be reached on (703) 308-4918.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. Group 2800 fax number is (703) 308-7722 or (703) 308-7724.

PC
June 27, 2003


PHAT X. CAO
PRIMARY EXAMINER